RIO LINDA/ELVERTA POWER PROJECT
RESPONSES TO
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ATTACHMENT #74

DRAFT

EROSION CONTROL AND STORM WATER MANAGEMENT PLAN

FOR THE

RIO LINDA/ELVERTA POWER PROJECT

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1.0 INTRODUCTION

This Draft Erosion Control and Storm Water Management Plan (ECSWMP) has been prepared to comply with California's General Permit for Storm Water Discharges Associated with Construction Activities [Construction General Permit (NPDES)] for the Rio Linda/Elverta Power Plant (RLEPP). This Draft ECSWMP identifies measures appropriate to minimize potential for erosion, limit transport of sediment, and minimize generation of pollutants and other adverse effects of stormwater runoff.

This Draft ECSWMP will be updated to reflect final project engineering and design.

2.0 PROPOSED PROJECT AND SETTING

2.1 PROPOSED PROJECT AND SETTING

The proposed RLEPP consists of a natural gas-fired combined cycle power plant and associated linear facilities. The project will have a nominal electrical output of 560 MW with commercial operation planned for early 2004. The project will be fueled with natural gas that will be delivered to the power plant site via a new 16 to 20-inch 20.1-mile pipeline that will be owned and operated by the Pacific Gas and Electric Company (PG&E). The plant will supply power to the Western Area Power Administration (Western) transmission grid. Western's existing Elverta–Hurley 230 kV lines that cross the RLEPP site will be looped into the plant switchyard. Water for the project will be provided by the Rio Linda/Elverta Community Water District (RLECWD). Wastewater will be processed by a zero liquid discharge system. The project will require upgrading a 3.4 mile section of the Hedge-Proctor transmission line southeast of the City of Sacramento.

2.2 LOCATION OF FACILITIES

RLEPP is proposed to be located about 7 miles east of Sacramento International Airport on four parcels (Assessor's Parcel Numbers 202-0090-030, 031, 032, and 033) totaling 90 acres in Section 19, Township 10N, Range 5E, Rio Linda, Sacramento County. The power plant site, controlled under an option agreement, is bordered by the Union Pacific rail lines to the west and West 6th Street to the east. Elverta Road is approximately ½ mile north of the power plant site. Straugh Road is approximately ¼ mile south of the power plant site. Figure 2-1, Regional Location Map, illustrates the power plant location and nearby roads. Figure 2-2 illustrates the power plant site, the route of the natural gas supply pipeline, and the location of the Hedge-Proctor transmission line upgrade.

2.3 POWER PLANT SITE DESCRIPTION

The power plant and switchyard will occupy approximately 18.2 acres within the 90-acre project site, as illustrated in Figure 2-3. The site is presently undeveloped agricultural land used for grazing cattle. Site topography is relatively flat and ranges from 26 to 43 feet above mean sea level (amsl). Small portions of the site are within a projected 100-year flood plain designated by the Federal Emergency Management Agency (FEMA, 1998) at 31 feet amsl. A portion of the site, approximately 55 acres, will be cut and filled to provide a level area for the power generation facility, switchyard, and construction laydown areas at an elevation of 40 feet amsl.

2.4 CONSTRUCTION DISTURBANCE AREA

The power plant site is presently unoccupied agricultural land used for grazing. Estimated land disturbances for construction and operation of the project, including the power plant, transmission line, and pipeline, are presented in Table 2-1.

Table 2-1 Estimated Land Disturbance Areas for Construction and Operation

Project Component	Acres	Notes
Power Generation Facility • Temporary (Construction) • Permanent	20.4 14.2 Total 34.6	Temporary construction includes laydown, topsoil storage, parking and construction office area; Permanent disturbance is the area within the fence line of the power generation facility, plus the detention basin area.
Switch Yard • Temporary (Construction) • Permanent	8.3 4.0 Total 12.3	Temporary construction includes laydown, parking, and construction office area. Permanent disturbance is the area within the fence line of the switch yard facility.
Sorento Road Extension • Temporary (Construction) • Permanent	4.7 2.2 Total 6.9	Road length is approximately 3,600 feet from the end of pavement on Sorento Road to the plant fence line. Permanent disturbance is 24 ft wide pavement plus 4-foot shoulder on each side (=32 foot width); temporary construction disturbance is 100 feet wide, including the natural gas pipeline which will be within 10 ft of the shoulder of the new access road. The surface above the buried pipeline will be restored to agriculture use or natural habitat.
Transmission Line • Temporary (Construction) • Permanent	1.1 0.1 Total 1.2	Transmission line loop from site switch yard to existing Elverta-Hurley Western line has two legs, each about 800 feet in length, and each requiring 3 structures. For the 6 structures, 3 are outside of the temporary construction disturbance area of the switchyard and laydown area, so those 3 structures will have a temporary disturbance averaging about 10,000 sq ft per structures, plus two pull sites at 10,000 sq ft per site (total of (50,000 sq ft). Permanent average disturbance is 400 sq ft per structure.
Natural Gas Pipeline • Temporary (Construction) • Permanent	242.4 0 Total 242.4	Pipeline is 20 miles in length (from south end of existing pavement on Sorento Road to termination near Yolo). Permanent 50-foot easement, but surface restored to agriculture or natural habitat. No temporary or permanent access road. Construction disturbance will be 100-foot wide. (See Sorento Road above for section of pipeline adjacent to shoulder of Sorento Road.)
Hedge-Proctor T-Line Upgrade • Temporary (Construction) • Permanent	11.1 0.1 Total 11.2	T-line length is 3.4 miles. Approximately 45 new single shaft steel double circuit poles will be required Temporary construction disturbance is an average of 10,000 sq ft per structures, plus four pull sites at 10,000 sq ft per site. Permanent average disturbance is 100 sq ft per structure.

2.5 CLIMATE OF PROJECT AREA

The average annual precipitation in Sacramento is 17.87 inches. January is the wettest month with an average of 4.03 inches of precipitation, and July is the driest month, with an average of 0.05 inches of rain. The average number of days per year with precipitation is 58. Table 2-2 shows the average climatological data for the Sacramento County Region.

Table 2-2. Average Climatological Data for Sacramento

		Temperature °F		Precipitation (inches)	
Month	**Max**	**Min**	**Ave**	**Normal**	**Ave max**
January	54	40	47	4.18	15.04
February	61	44	52	2.94	10.3
March	65	45	56	2.18	10
April	72	48	60	1.44	14.2
May	80	53	66	0.35	3.25
June	87	578	72	0.13	1.45
July	93	60	77	0.06	0.9
August	92	60	76	0.09	0.67
September	88	58	73	0.3	3.62
October	78	53	65	0.9	6.85
November	64	45	55	2.31	11.34
December	55	40	48	3	13.4
Year	74	50	62	17.87	

Source: Climate of Sacramento California. National Oceanic and Atmospheric Administration, Technical Memorandum NWS WR-65 (NWS, 1999)

2.6 SOILS OF PROJECT SITE

According to soil maps of the Rio Linda area (SCS 1993), the soil types at the plant site are San Joaquin fine sandy loams (0 to 3 and 3 to 8 percent slopes). The most common soils types along the transmission line and pipeline routes that would be disturbed during construction activities are Clear Lake clay, San Joaquin-Galt complex, Yolo silt loam, Sycamore silt loam and complex, Maria silt loam, and Tyndall very fine sandy loam. These soils have none to slight susceptibility to water erosion (USDA, SCS 1993 and 1972).

3.0 COMPLIANCE WITH APPLICABLE LAWS, ORDINANCES, REGULATIONS AND STANDARDS

Laws, ordinances, regulations and standards (LORS) relating to erosion control and stormwater management for the RLEPP include the following:

- California's General Permit for Storm Water Discharges Associated with Construction Activities [Construction General Permit (NPDES)]. A project Notice of Intent will be filed with the Central Valley Regional Water Quality Control Board to comply with the conditions of the Construction General Permit. The Construction General Permit requires preparation of a Storm Water Pollution Prevention Plan (SWPPP). The permit will apply to the plant site, pipelines, transmission lines, and other ancillary facilities that could potentially impact the quality of stormwater runoff.
- Sacramento County Code of Building Regulation Grading Ordinance. The Sacramento County Engineering and Survey Services Department implements the rules and regulations of the grading code through a permit process designed to control excavation, grading, and earthwork during construction. The grading permit will apply to the plant site, pipelines, transmission lines, and other ancillary facilities.
- Dust Control Regulations [Sacramento Metropolitan Air Quality Management District) (SMAQMD) Fugitive Prohibitions]. The purpose of this regulation (Regulation VIII) is to prevent, reduce, or mitigate particulate (PM_{10}) emissions. Wind erosion, a source of fugitive PM_{10} emissions, will be minimized by compliance with the fugitive PM_{10} standards. These standards are regulated by the SMAQMD and are enforced by the SMAQMD and the California Energy Commission (CEC).
- Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP). A project-specific BRMIMP will be prepared prior to the CEC's certification of the project, which will describe biological mitigation measures to be implemented during construction and operation of the power plant and associated facilities. These mitigation measures will include a topsoil reuse and revegetation plan. Also, constraints on the timing of certain construction activities and mitigation monitoring requirements will be provided in the BRMIMP. Specific mitigation requirements from the California Department of Fish and Game and the U.S. Fish and Wildlife Services may also be identified in the BRMIMP.

A summary of the applicable erosion and storm water management LORS for the RLEPP is provided in Table 3-1.

Table 3-1. Laws, Ordinances, Regulations, and Standards for Erosion and Stormwater Management

Jurisdiction	Authority	Administering Agency	Requirements or Measure of Compliance
Federal	Clean Water Act of 1977 (including 1987 amendments)	RWQCB – Central Valley Region under State Water Resources Control Board	Issuance of NPDES permits and discharge limitations
	U.S. Department of Agriculture, Soil Conservation Service, (1983), *National Engineering Handbook,* Sections 2 and 3	Natural Resources Conservation Service	Incorporate planning and implement soil conservation practices in design and construction.
State	California Public Resources Code § 25523(a); CCR §§ 1752, 1752.5, 2300-2309, and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (i)	CEC	Submit information regarding potential environmental impacts.
	Guidelines for Implementation of CEQA, Appendix G; 14 CCR § 15000- 15387	CEC	Evaluate erosion or siltation and conversion of agricultural land.
	Porter- Cologne Water Quality Control Act of 1972; Cal. Water Code § 13260-13269; 23 CCR Chapter 9	CEC and the Central Valley RWQCB under the State Water Resources Control Board	Assure protection of water quality through use of Best Management Practices, preparation of a SWPPP, and issuance of NPDES permit effluent limitations.
	Williamson Act	California Dept. of Conservation, Office of Land Conservation	Assure project will not affect land under Williamson Act contracts.
Regional	SMAQMD Rule 404	SMAQMD	Prevent, reduce, or PM_{10} emissions.
Local	Sacramento County General Plan – Conservation Element	Sacramento County Planning and Development Services	Comply with General Plan.
	Sacramento County Hydrology Manual	Sacramento County Department of Public Works	Design drainage system in compliance with manual criteria.
	Sacramento County Code of Building Regulation Grading Ordinance	Sacramento County Dept. of Public Works	Comply with grading code, chapter 17.28.
Standards	California Building Code, Excavation and Grading	Sacramento County Department of Public Works	Comply with Uniform Building Codes standards.
	Uniform Fire Code, Article 80, Hazardous Materials Storage	CEC; Sacramento County Fire Department	Comply with Uniform Fire Code standards.

SWPP – Storm Water Pollution Prevention Plan; SMAQMD – Sacramento Metropolitan Air Quality Management District; CEC – California Energy Commission

PM_{10} – mitigate particulate

4.0 CONSTRUCTION BEST MANAGEMENT PRACTICES (BMP)

Standard construction BMPs to be implemented on this project are described in the *California Storm Water Best Management Practice Handbook* (1993) and the *Blueprint for a Clean Ocean: Best Management Practices to Prevent Storm Water Pollution from Construction Activities* (1995). These resource handbooks provide descriptions of BMPs that can significantly reduce soil erosion and pollutant discharges from construction sites. The BMPs in the following section are designated by a code and number. The code and number reference the same BMPs described in the handbooks. The BMPs starting with the prefix "ESC" or "CA" correspond to the *California Storm Water Best Management Practice Handbook*. Copies of selected BMPs from this Handbook to be implemented for this project are provided in Appendix A.

BMPs that Reduce Erosion and Sediment-Laden Stormwater Runoff. Whenever possible, the primary protection measures at the site will be erosion control BMPs, with sediment control BMPs used as a backup measure.

Erosion BMPs to be implemented will include:

- **Site planning considerations**, including scheduling of work during dry weather periods (ESC1) and preservation of existing vegetation, whenever possible (ESC2).
- **Physical stabilization**, including use of geotextiles and mats (ESC20), dust control (ESC21), construction road stabilization (ESC23), and stabilized construction entrance (ESC24).

Sediment control BMPs to be implemented will include:

- **Diversion of site runoff**, including earth dike (ESC30), temporary drains and berms (ESC31), and slope drains (ESC32).
- **Velocity reduction**, including outlet protection (ESC40), check dams (ESC41), and slope roughening/terracing (ESC42).
- **Sediment trapping and filtering**, including silt fences (ESC50), straw hay bales (ESC51), sand bag barriers (ESC52), storm drain inlet protection (ESC 54), sediment trap (ESC55), and sediment basin (ESC 56).

BMPs to Prevent Stormwater Contamination. These BMPs minimize the potential for discharge of pollutants related to construction activities. Appropriate BMPs that will be implemented for the EHPP include:

- **Control of construction practices**, including paving operations (CA2) and structure construction and painting (CA3).
- **Control of materials management**, material delivery and storage (CA10), material use (CA11), and spill prevention and control (CA12).

- **Waste Management**, including solid waste management (CA20), hazardous waste management (CA21), contaminated soil management (CA22), concrete waste management (CA23), and sanitary/septic waste management (CA24).
- **Vehicle and equipment management**, including vehicle and equipment cleaning (CA 30), fueling (CA31), and maintenance (CA32).
- **Contractor training**, including employee and subcontractor training (CA40).

5.0 EROSION CONTROL AND STORMWATER MANAGEMENT PLANS

5.1 CONSTRUCTION

5.1.1 Earthwork

The existing site topography will be cut and filled to create a plant grade with an approximate elevation of 40 amsl. Borrowed fill is estimated at 70,000 cubic yards. All earthwork within the project 100-year flood zone will have a balanced cut and fill.

Earthwork on the power plant site will consist of removal and disposal of vegetation and debris, excavation and compaction of earth to create the plant grade, and excavation for foundations and underground systems. Materials suitable for compaction will be stored in stockpiles at designated locations using proper erosion prevention methods. Materials unsuitable for compaction, such as top soil and large rocks, will be disposed of at an acceptable location. Any contaminated materials encountered during excavation will be disposed of in accordance with applicable laws, ordinances, regulations, and standards.

Compaction will be performed in uniform layers of specified thickness. Materials in each layer will be properly moistened to facilitate compaction to the specified density. To verify compaction, representative density and moisture content tests will be performed in the field during compaction. Structural fill material supporting foundations, roads, parking areas, etc. will be compacted. Prior to placing fill materials, subgrades will be examined for loose or soft areas and further excavated as necessary.

The grading plan for the plant site is provided in Figure 5-1.

To facilitate the start of grading operations, the existing drainages on the southeast corner of the site and to the west of the plant site will be designated as a temporary sedimentation basins (ESC56). Sedimentation basins are recommended for construction projects over 10 acres in size (California Storm Water BMP Handbook 1993). An embankment of riprap rock measuring approximately five feet high will be placed across the drainage channel. An outlet pipe will be provided and situated to allow for a settling zone of at least three feet deep. The approximate locations of the embankments and sedimentation basins are shown in Figure 5-1. The sedimentation basins will be designed to contain runoff from a 10-year, 24-hour storm event. A hydrology evaluation of the plant site will be performed to determine the specific design criteria of the sedimentation basin. This evaluation will determine the proper sizing of storm drains, culverts, and drainage channels to accommodate the design storm.

Figure 5-1 Stormwater Management and Erosion Control Plan

The areas of fill at the plant site area will be laid down in 1-foot lifts and compacted. Upon reaching the grade elevation of 40 feet AMSL, the plant site will be fine graded so that the ground surface has a slight slope of 2 percent. The proposed drainage plan for the plant site is shown in Figure 5-1. The site will be graded so that runoff will drain in both directions from a slight ridge, which will run lengthwise across the site in a north-south direction. Storm water runoff will be collected by a surface drainage system and directed to two sedimentation/detention basins. The flow of storm water will generally follow the existing drainage pattern. Runoff from the west-side of the plant will drain westerly towards a storm drain inlet (ESC32) located at the west end of the site. Runoff from the east-side of the plant will first drain easterly and then southerly along the perimeter road to a storm drain inlet (ESC32) located at the southeast corner of the site. Both storm drain inlets will minimize flow of sediments by use of a gravel and wire mesh filter over the inlet (ESC54).

To attain the final grade and elevation, a 30 percent sloped embankment will be constructed on the sides of the plant site as shown in Figure 5-1. The embankment will be terraced to reduce erosion potential (ESC42). The embankment will be stabilized by placement of jute matting (ESC20). Silt fences (ESC50) will be placed along the base of the embankment following grading operations to minimize sediment loss from the slope. Sand bags (ESC52) will be placed along the top of the plant site, the remaining periphery of the site, and surrounding the two laydown areas to minimize soil erosion from these areas. The storm drains will drain to a slope drain (ESC32) and terminate in riprap apron to dissipate energy (ESC40). The planned locations of these erosion control measures are shown on Figure 5-1. These structures will be monitored and maintained as necessary. Proper placement and maintenance of these structures will minimize soil losses and project-related sediments from entering the natural drainage channels.

Topsoil removed during grading will be stockpiled for replacement on disturbed earth (ESC11). This topsoil will provide a seed source for revegetation of disturbed areas.

5.1.2 Temporary Erosion Control Measures (Construction Phase)

Typically, temporary erosion control measures include revegetation, slope stabilizers, tree protection, berms and ditches, and sediment barriers. Vegetation is the most efficient form of erosion control because it keeps the soil in place and maintains the landscape. Vegetation reduces erosion by absorbing raindrop impact and reduces runoff volume by increasing infiltration into the soil. Disturbed areas will be revegetated as soon as possible after construction and vehicle traffic will be kept out of revegetated areas.

There are no large trees on the site requiring protective fencing. However, there are several vernal pools and drainages. These areas will be identified by fencing or flagging to keep vehicle traffic and other equipment out of sensitive areas. This is especially important during the spring when the pools contain water and the soils are saturated. Furthermore, in the summer, these areas

may not be distinguishable due to dry conditions. Protective fencing or flagging will assure that these areas are marked.

Temporary slope stabilization may be necessary to stabilize cut and fill slopes created during grading. Spoil piles will be stabilized and covered if left on-site for long periods. The level to gently rolling topography of the project site will minimize the need for extensive slope stabilization measures. The most common use of berms and ditches is to divert runoff away from exposed and disturbed soils to a stable area or sediment trapping device.

Sediment barriers, such as filter fences, slow runoff and trap sediments. Sediment barriers are generally placed below disturbed areas, at the base of exposed slopes, and along streets, curbs and property lines (below the disturbed area). Sediment barriers are often placed around sensitive areas, such as wetlands or creeks, to prevent contamination by sediment-laden water. Sediment barriers will be placed around the vernal pools and other wetlands. Barriers will also be placed around the property boundary to prevent sediment from leaving the project site.

The following construction practices will be utilized to minimize erosion:

1. Sedimentation ponds, as located on Figure 5-1, will be installed prior to all other construction on the site.
2. All other site perimeter locations where runoff may occur will be protected with a combination of straw bales and silt fences.
3. The perimeter of the all wetland areas on site will be fenced or flagged prior to construction to minimize encroachment by construction activities.
4. Erosion control barriers, silt fences will be installed immediately outside the limits of the wetlands.
5. Construction limits will be defined and flagged on site to minimize the area of disturbance prior to construction in any given area.
6. Diversion ditches and/or berms will be constructed as necessary to divert runoff away from exposed or disturbed areas.
7. Revegetation will be established in each construction area as soon as possible. Temporary vegetation and erosion control matting will be utilized until permanent vegetation can be established.
8. Erosion control barriers will undergo periodic inspection and maintenance a required to assure adequate performance throughout the construction of the project and until a permanent ground cover similar to pre-development conditions has been established.

5.1.3 Wetlands Protection

The perimeter of the all wetland areas on site will be fenced or flagged prior to construction to minimize encroachment by construction activities. During construction, prevention of further degradation of the wetland and vernal pool habitats will include the cleanup of trash and excess

spoils, and placement of barricades along the perimeter of the pools (including buffer) to exclude foot and vehicular traffic. Construction activities will also include scraping soil from impacted pools within the Sorento Road extension corridor. Collected soil will be maintained for use as an inoculation source during the revegetation phase.

To protect existing wetlands during construction, BMPs include:

- Marking wetlands with flagging and signs to keep equipment out of these areas
- Placing all staging areas and equipment parking outside of wetlands
- Placing spoil piles out of wetland areas and install and maintain sediment filter devices around spoil piles
- Installing and maintaining sediment filter devices around wetlands boundaries when wetlands or pools contain standing water.

The following measures will be utilized to minimize the disturbance of the man-made pond and adjacent vernal pools area:

1. The perimeter of the all wetland areas on site will be fenced or flagged prior to construction to minimize encroachment by construction activities.
2. The water level will temporarily be pumped down to a level 2' below the toe of the new berms prior to road construction.
3. Erosion control barriers, such as silt fences, will be installed within 10' of each toe of the berm through the wetland area to both retain sediment and restrict construction activities and personnel to the immediate vicinity of the berm.
4. A culvert will be installed under the berm, to provide continuity in the system of vernal pools, prior to the construction of the berm. The invert elevations of the culvert will match existing grade.
5. The side slopes from the road elevation to existing grade will be graded at 3 horizontal to 1 vertical to minimize the overall width of the disturbed area.
6. Erosion control measures will remain in place and receive periodic maintenance until a sufficient vegetative ground cover is established on all disturbed areas.

5.1.4 Dust Control

Wind blown dust will be controlled by frequent application of water to freshly disturbed soil areas. Water trucks will be used continually during excavation, loading, and grading operations to minimize the effects of windblown dust (ESC21). Water will be applied several times each day. The project will comply with all air quality rules and regulations of the SMAQMD.

5.1.5 Hazardous Materials/Waste Management

Designated areas within the construction laydown areas will be used for hazardous materials storage, solid waste storage, hazardous waste storage, equipment re-fueling area, and an

equipment maintenance area. As indicated in Figure 5-1, dirt berms will be constructed around each of these areas to contain any spill or leaks of contaminants or runoff from the area (CA12, CA21, CA30, CA31, and CA32).

The RLEPP will comply with all state and federal regulations regarding solid waste and hazardous waste management. Solid wastes expected to be generated include demolition debris, unsuitable soil and rocks, excess concrete, lumber, scrap metal, insulation, packaging, and non-hazardous chemical containers. Non-recyclable wastes will be promptly placed in a covered dumpster and removed on a regular basis by a licensed waste disposal contractor for disposal at a Class III landfill.

Raw materials stored at the laydown areas will be covered with a tarp or plastic sheeting at the end of each workday during the rainy season.

Demolition and removal of out-of-service butane/gasoline tank, pipelines, and related equipment will be required for preparation of the plant site. In the event that contaminated soil is encountered during demolition or excavation activities, the soil will be segregated, sampled, and tested for common oil field contaminants to determine appropriate disposal alternatives. Contaminated soil will be covered with plastic sheeting while it is stockpiled at the site. This will eliminate runon or runoff of contaminants from the contaminated soil.

Small quantities of waste oil, waste paints, spent solvents, lubricants, welding materials and other hazardous wastes may be generated during construction activities. Hazardous wastes will be collected in labeled accumulation containers kept in a bermed storage area. All hazardous wastes will be transported offsite by licensed hazardous waste haulers and disposed at permitted hazardous waste treatment /disposal facilities. RLEPP will comply with all regulations regarding hazardous waste 90-day storage limit, labeling, manifesting and reporting requirements, personnel training, housekeeping, and record keeping. A detailed Hazardous Waste Management Plan (HWMP) will be developed as part of the application for a General Storm Water Industrial Permit from the RWQCB.

5.1.6 Personnel Training

Construction workers, subcontractors, and plant employees will receive proper training of the best management practices contained in this document (CA40). The construction contractor and subcontractor personnel will be trained in stormwater pollution prevention, including implementation, inspection, and maintenance of best management practices. They also will be trained in the components and goals of the SWPPP, the Chemical Spill Contingency Plan (CSCP), and the HWMP. Contractors will be required to maintain records of employee training. The documents will include a list of all contractors or subcontractors responsible for

implementing the requirements of each document. Each contractor will be required to certify that they understand the requirements of the documents prior to working on the site.

5.2 FOR THE LINEAR FACILITIES

Construction activities along the linear features will involve soil disturbances for placement of transmission line footings and water supply, wastewater, and natural gas pipelines. Activities will include grubbing, minor grading, excavation of support footings (for transmission lines), excavation of trenches (for buried pipelines), backfilling, and compaction.

5.2.1 Hedge-Proctor Transmission Line Upgrade

Construction activities along the transmission line include: removal of existing conductors; removal of existing lattice tower structures; erection of pole structures; and installation of conductors and shield wires.

Mitigation Measures. Soils excavated for the support footings will be stored in temporary stockpiles. The same soil will be used to backfill the footings and topsoil will then be spread out over the surface to provide a seed source for revegetation. Any excess subsoil will be removed from the site. All disturbed areas will be allowed to naturally revegetate.

New pole structures are generally located near existing inspection access roads currently used for utility access. A suitable marking system will be developed in agricultural areas to assure that designated access routes are consistently used and that use of other routes is discouraged.

Construction of the transmission line upgrade is expected to take approximately 2 months. Open holes, stockpiled soil, and other freshly exposed soil areas along the transmission will be protected by sand bagging, covering with plastic sheeting, or other means if construction occurs during the rainy season (November to April). In addition, the following mitigation measures (BMPs) will also be implemented if warranted:

- Sand bags will be placed along the outer perimeter of the disturbed areas in the transmission line corridor to minimize erosion and loss of soil.
- Transmission line support poles will not be located within stream channels or other flood plain areas.
- Stockpile areas may be partially covered with a water-resistant tarp, protected from runoff with hay bales or silt fencing, or may need to be watered for dust suppression.

5.2.2 Water Supply Pipeline

The 1.3 mile long water supply pipeline will be located within road right-of-way on West 6th Street and on U Street. Soil disturbances associated with construction of the water supply pipeline are expected to be approximately 40 feet wide along the route right-of-way.

Mitigation Measures. Soils excavated for the trenches will be stored in temporary stockpiles. The same soil will be used to backfill the trench and topsoil will then be spread out over the surface to provide a seed source for revegetation. All disturbed areas will allowed to naturally revegetate.

Work schedules may need to be adjusted during the rainy season in order to minimize work during rainy periods. Open trenches, stockpiled soil, and other freshly exposed soil areas along the water supply pipeline will be protected by sand bagging, covering with plastic sheeting, or other means during the winter rainy season. In addition, the following mitigation measures (BMPs) will also be implemented if warranted:

- Sand bags will be placed along the outer perimeter of the disturbed pipeline corridor to minimize erosion and loss of soil. Silt fencing and hay bales will be used, as necessary, along disturbed slopes and stream channel crossings.
- Stockpile areas may be partially covered with a water-resistant tarp and protected from runoff with hay bales or silt fencing
- Stockpiles and other freshly disturbed soils may need to be watered for dust suppression.

5.2.3 Natural Gas Pipeline

Soils excavated for trenches will be stored in temporary stockpiles. The same soil will be used to backfill the trench and topsoil will then be spread out over the surface to provide a seed source for revegetation. Any excess subsoil will be removed from the site. All disturbed areas will be revegetated by application of topsoil, mulching, or seeding.

Work schedules may need to be adjusted during the rainy season in order to minimize work during rainy periods. Open trenches, stockpiled soil, and other freshly exposed soil areas along the water supply pipeline will be protected by sand bagging, covering with plastic sheeting, or other means during the winter rainy season. In addition, the following mitigation measures (BMPs) will also be implemented if warranted:

- Sand bags will be placed along the outer perimeter of the disturbed pipeline corridor to minimize erosion and loss of soil. Silt fencing and hay bales will be used, as necessary, along disturbed slopes and stream channel crossings.
- Stockpile areas may be partially covered with a water-resistant tarp and protected from runoff with hay bales or silt fencing
- Access roads, stockpiles, and other freshly disturbed soils will be watered, as necessary, for dust suppression.

General Practices – Waterbody Crossing

Construction Control Measures (ESC 22). Wetlands and waterbodies will be crossed using directional boring techniques. These techniques essentially preclude the disturbance of channels, beds, and banks and associated riparian areas. Boring equipment will be set back a sufficient

distance from the edge of the waterbody to permit the boring to occur below the crossings and associated riparian vegetation exclusion zones. Dry washes, culverted drainages, and dry ephemeral streambeds will be trenched and restored to pre-construction conditions upon project completion.

Preservation of Existing Vegetation (ESC2). No vegetation clearing will be permitted in riparian areas.

Hazardous and Non-Hazardous Waste Management (CA21 and CA31). Hazardous materials, chemicals, fuels, lubricating oils, or concrete coating materials will not be stored within 100 feet of any waterbody. Refueling of all construction equipment will be at least 100 feet from waterbodies.

All soil and drilling fluids will be kept outside the riparian exclusion zone. Sediment barriers will be used to prevent the flow of soil into any waterbody. Drilling fluids will be collected and disposed of in accordance with all applicable local, state, and federal requirements.

When directional boring under waterways, special care must be taken to preserve water quality and prevent any chance of violating state water quality or health and safety standards. Material Safety Data Sheets (MSDSs) will be available at each bore site that describe measures to protect workers and the environment from hazards associated with products used.

Spill Prevention, Containment and Accidental Frac Out Procedures (CA12). BMPs, along with worker training and spill-response protocols, will be used during the design, setup, and operation phases to prevent or reduce the discharge of drilling fluids.

Drilling fluids are composed of a water and clay bentonite mixture. The amount of bentonite used in the mixture is dependent upon the type of formation to be drilled. Loose, sandy materials require a thicker mixture than clay or rock formations. Bentonite is a naturally occurring clay mineral that is tan to gray in color. Bentonite has been approved as a drilling fluid additive by the National Sanitation Foundation (NSF) in accordance with NSF 60 and 40 Code of Federal Regulations (CFR), Part 141.111. MSDSs for bentonite under various trade names will be available at drilling sites.

5.3 OPERATION

As construction of the power plant is ongoing, curbed areas will be placed around all operational areas that have a potential for generation of oil contamination or other pollutant discharges (CA10, CA11, CA12, CA20, CA21, CA24, CA30, CA31, and CA32). Curbed areas will be constructed around the cooling towers, the gas turbines and steam generators, the chemical metering and pumping stations, maintenance areas, re-fueling areas, and the wastewater collection and treatment areas. Stormwater runoff from the curbed portions of the plant site will be collected and routed to an oil-water separator and then to the wastewater collection tank. This

wastewater will be disposed of separately through the plant zero discharge system. All chemical storage tanks at the plant site will be completely enclosed within secondary containment areas to avoid accidental releases from chemical spills and leaks. Thus, no chemical pollutants will be released in the stormwater runoff that leaves the plant site. The only areas of the plant site which will drain offsite include the electrical switchyard, building rooftops, and the paved periphery access road. Because the long-term operation of the power plant has been designed to minimize the effects of erosion, sedimentation, and pollutant transport, no operational permit requirements are anticipated to be required by the RWQCB.

5.3.1 Permanent Erosion Control Measures (Operation Phase)

Permanent erosion control measures include drainage and infiltration systems, slope stabilization, and revegetation. Proper installation of culverts requires stabilization of the inlets where scour may occur. Outlet protectors, such as a rock apron, are installed below culverts, below sediment trap outlets, or where a drainage channel enters a natural channel. Permanent slope stabilization measures such as riprapping, retaining walls, gabions, or slope terracing may be necessary on cut slopes. All of these measures require maintenance and will be inspected after heavy storms.

Grading and Drainage

The site grading and drainage system will be designed to comply with all applicable federal, state, and local regulations. The general site grading will establish a working surface for construction and plant operating areas, provide positive drainage from buildings and structures, and provide adequate soil coverage for underground utilities.

Onsite drainage will be accomplished through gravity flow whenever possible. The surface drainage system will consist of mild slopes and open channels. The buildings and structures will be located with the ground floor elevation a minimum of 6 inches above the finished grade. The preferred slope of the graded areas away from structures will be 1 percent with a minimum slope of 0.5 percent. A storm sewer system (underground inlets and pipes) may be provided in areas where ditches are not feasible due to space limitations.

Site drainage facilities will be designed for the flow resulting from a 10-year, 24-hour rainfall. Temporary facilities will generally be designed for a 10-year rainfall. Site runoff ponds will be designed to retain the first ½-inch of runoff. In addition, drainage facilities will be designed to prevent flooding of permanent plant facilities during a 100-year storm.

Runoff from possible oil and chemical contamination areas, such as the fuel oil tank containment area, fuel track unloading area, transformer areas, and chemical storage areas, will be contained. Storm water contained in these areas will be routed through an oil/water separator or neutralization basin and then drained to the wastewater, collection system

The main plant complex area will be graded with moderate slopes (1 percent minimum preferred) for effective drainage.

The Sorento Road Extension and the plant access road will have a minimum elevation of 34 feet, which is higher than the existing road elevation of 33.7 feet at the intersection of Elverta Road and Sorento Road. Culverts and ditches will be located to ensure positive drainage.

Ditches

Channels and ditches will generally be trapezoidal in section, of sufficient width to facilitate cleaning, and mildly sloping so that erosion of the ditch bottom due to high flow velocities is minimized. Side slopes on ditches will be approximately three horizontal to one vertical. The preferred slope of the ditch bottom will be 100 horizontal to one vertical, with a minimum slope of 200 horizontal to one vertical. In areas where space is limited and design flow rates are small, ditches having a triangular cross section will be provided. In areas where the ditches may be crossed by vehicles, the ditch, depth and slope will be as gentle as possible.

Ditches will be designed to carry a 10-year 24-hour rainfall event so that flows do not exceed eroding velocities unless erosion protection is provided. Erosion protection for ditches will be provided by grassed surfaces except in areas where peak runoff velocities will be greater than 4 feet per second (fps). These ditches will be protected by erosion control fabric, riprap, concrete paving, or soil-cement.

Culverts

Drainage culverts will be provided at the intersection of ditches and embankments. Culverts will be constructed of reinforced concrete or corrugated metal pipe. Reinforced concrete box culverts will be provided where necessary.

The drainage culverts and associated ditches will be designed to ensure passage of the 10-year peak runoff flow without producing a headwater elevation above the bottom of the roadway base course. The minimum cover requirement of culverts will be 12 inches. Allowance for corrosion protection over the expected life of the plant will be accounted for in the design and selection of culvert materials. Culverts will have beveled end sections compatible with the ditch side slopes or concrete headwalls at both the inlet and outlet. The inlets and outlets of all culverts will be protected from erosion by the installation of riprap.

Storm Sewer System

A storm sewer system will be used in areas where space or grade limitations govern the collection method employed or where unobstructed traffic flow is required. Inlets will be constructed of cast-in-place or precast concrete with top grates. Storm sewer pipes will discharge runoff to the nearest open channel. Storm sewer pipes will be sized to limit flow velocities

resulting from the 10-year, 24-hour rainfall event to a maximum of 8 fps. A minimum design velocity of 2 fps will be used to facilitate cleaning. The minimum cover requirement, loading, and material selection for pipes will be as specified for culverts.

Storm-water runoff will be collected onsite and conveyed to a site runoff pond, which will serve as a detention pond.

Site Runoff Ponds

Site runoff ponds will be earth diked structures. The inside pond slopes will be stable under all possible water conditions. Site runoff ponds will be designed to retain the first ½-inch of runoff.

A gravity system of ditches and culverts will convey the runoff to the detention pond.

The site runoff pond will also be used as a construction runoff pond. The construction drainage area includes all of the permanent pond drainage area.

Pre- and Post-Development Runoff Conditions

The peak flow associated with the 10-year storm event at the site, before modifications (pre-development), will be compared to the after-construction (post-development) conditions. The outflow from the site runoff pond will be designed not to exceed the peak flow of the pre-development condition.

The pre-development runoff conditions will be determined prior to construction of the site runoff ponds utilizing the guidelines of the Soil Conservation Service as published in *Urban Hydrology for Small Watersheds*, Technical Release Number 55. This method considers the following existing conditions to determine the pre-development runoff:

> soil type, the type and amount of ground cover, the slope, the area of drainage, and the design storm.

These factors are again considered for post-development. Storm water detention ponds will then be sized, using the Soil Conservation Services method, to hold runoff from the site to the pre-development runoff conditions for the design storm by storing the excess runoff and limiting the outflow from the ponds with controlled outlet structures.

The runoff ponds indicated in Figure 5-1 are estimated at 1.1 acre-feet and 0.4 acre-feet, respectively, based on the total estimated post-development runoff for the 10-year, 24-hour rainfall.

Erosion and Sedimentation Control

Erosion and sedimentation control will be provided to retain sediment onsite and to prevent violations of water quality standards.

The proposed site development will alter the land areas of the site. Existing vegetation will be removed as required during site preparation operations. The general preparation of the overall site will be followed by earth-moving activities required for the construction of specific facilities. Final finish grading and seeding will begin when all other earth-moving operations are complete. Final grading will include seeding all disturbed areas not occupied by plant facilities nor surfaced with asphalt or crushed aggregate.

Temporary erosion and sedimentation control measures to be used during construction will be designed to prevent sediments from being displaced and carried offsite by rainfall runoff. The primary destination of construction runoff will be the site runoff pond.

Prior to beginning excavation activities, a silt fence or straw bales will be installed along the perimeter of the project where runoff to offsite areas could occur. The silt fence will filter sediments from construction runoff. During construction, the extent of earth disturbances will be minimized as much as practical. Areas outside of cut and fill operations will be protected against unnecessary equipment traffic.

Diversion ditches and/or berms will be constructed as necessary to divert runoff from offsite areas around the construction site. Temporary control measures will be maintained as necessary throughout the construction period.

Permanent erosion and sedimentation control measures within the project plant site will include the runoff collection system (ditches, inlets, culverts, drainage piping), surfaced traffic and work areas, seeded nonworking areas, and the site runoff pond. These measures will minimize the possibility of any appreciable erosion of the resulting sedimentation occurring on the project site.

Wetlands Revegetation

Wetlands areas adjacent to the access road which may have been disturbed will be revegetated. The revegetation program will include: 1) stockpiling and subsequent redistribution of existing soil containing on-site seed bank material; 2) inoculation with seed bank material from those pools which may be disturbed during construction; and 3) prevention of further disturbance to allow natural colonization of disturbed soils.

Fencing and Security

Chain link security fencing topped with barbed wire will be provided around the power plant facility site, substation, and other areas requiring controlled access. Fencing heights will be in

accordance with applicable codes and regulatory requirements. A controlled access gate will be located at the main entrance to the secured area.

5.3.2 Revegetation

Revegetation is an important permanent erosion control measure and can be used effectively with the other measures described above. Vegetation is the most efficient form of erosion control because it keeps the soil in place and maintains the landscape. Vegetation reduces erosion by absorbing raindrop impact and reduces runoff volume by increasing infiltration into the soil. Disturbed areas will be revegetated as soon as possible after construction and vehicle traffic will be kept out of revegetated areas. The following sections describe areas to be revegetated, plant species, planting techniques, seeding and fertilization rates, and maintenance and monitoring plans.

5.3.2.1 Plant Species

Plant species will be selected for the following four site conditions:

- Landscaped areas
- Slope areas
- Drainage ditches and pond edges
- Level disturbed areas

The landscape plan will include the following:

- A topographic analysis of the project to identify those viewpoints which are most likely to be visible to the general public.
- Landscaping will be used to provide human scale and seasonal color to entrances, parking lots, and other exterior use areas. Trees and/or shrubs will be used to unify the ground plane, break up the mass of the larger structures, and help to screen some of the smaller components from nearby residences.
- The use of color to make portions of the facility visually recedes, and variations in the vegetation patterns adjacent to the larger structures to bring down their scale will be utilized.
- Landscaping will be added near the parking lot to provide visual relief and shade for the employees and visitors to the project.
- Landscape materials will be selected with consideration of the climatic and soil conditions on the site. The theme for the planting plan will be derived from an assessment of naturally occurring plant materials and an evaluation for the need for dense, hardy screening.
- Cut and fill slopes will be stabilized through sound engineering practices designed to blend in with the existing landforms.

The landscaping will conform to Sacramento County requirements as set forth in Chapter 14.10, Section 14.10.010 et seq. of Title 14 of the Sacramento County Code. Some preference will be given to trees and shrubs that are native to the lower Sacramento River Valley which may also add wildlife habitat value. Plants will be selected from those listed in the County ordinance. The County requires this ordinance to be met prior to its approval of building permits. A copy of the County-approved Landscape Plan will be submitted to the CEC.

5.3.3 Planting Techniques, Seeding and Fertilization

Plantings of tree species will probably be comprised of mixture of evergreens rather than of a single species. Drought-tolerant and water-tolerant varieties will be planted in appropriate areas. Trees will be spaced about 25-50 feet apart, depending upon the species. The length of time the plantings will become effective depends upon the age and size of the trees at plantings Fertilization rates will be determined with the advice of a horticulturalist when the specific species have been identified. This will not be known until a landscape plan has been completed.

Planting techniques, seeding and fertilizer rates for slope areas, drainage ditches and pond edges, and level disturbed areas will be developed in the landscape plan. A combination of broadcast seeding or hydroseeding for grasses with hand planting of shrubs and groundcover species will likely be required. Fertilization rates will be determined with the advice of a horticulturalist when the specific species have been identified.

5.3.4 Wetlands Maintenance and Monitoring Plan

Permanent measures to protect on-site wetlands will require a maintenance and monitoring plan. Wetlands and vernal pools will be kept separate from the overall landscaping plan. They will not be mowed, planted, irrigated or fertilized in accordance with an overall plan. Because the wetlands and pools are degraded from overgrazing and upland species have invaded them, it may take one to two years for the appropriate vegetation to reestablish. The best method is to allow the wetlands and pools to revegetated naturally, without disturbing the soils and hydrology.

Hydrologic, erosion, and sedimentation impacts will be monitored by visual and photographic documentation. Existing conditions are well documented. However, because of the severe degradation of wetlands on the site and Sorento Road extension, we expect an improvement in wetland condition once livestock use is reduced. This will also be documented through visual survey and by photographs. RLEPP will also document the effectiveness of erosion and sediment control measures to assure that heavy equipment and construction activities are not impacting wetlands. This will be done by visually inspecting erosion and sediment control devices after storms and runoff to determine if they are collecting sediment and preventing erosion. Maintenance of erosion and sediment control devices after storms will also help prevent erosion.

6.0 MAINTENANCE AND MONITORING

Maintenance and monitoring of erosion, sediment control, and stormwater quality will also conform to BMPs. The following sections describe the routine monitoring and maintenance practices that will be performed for the RLEPP.

6.1 DURING CONSTRUCTION

The construction contractor will be responsible for the preparation, installation and removal of temporary erosion control measures described in this document. Contractor erosion control responsibilities will include:

- Initial inspection of erosion control measures as they are completed to ensure they will function as desired.
- Inspections following each rainstorm to ensure replacement of damaged or missing structures and materials.
- Notifying project construction crew when to implement adequate precautions in anticipation of rainy weather conditions.
- Defining a schedule for watering the access roads and other disturbed areas for dust suppression.
- Developing additional remedial erosion and sediment controls for problem areas, if any.
- Complying with the SWPPP, CSCP, HWCP, and applicable LORS.

A designated site representative will monitor and record the contractor and subcontractor's performance with respect to erosion/sedimentation control measures and management of construction materials, wastes, hazardous materials, and equipment. This representative will also inspect the site prior to anticipated storm events and after such events in accordance with the Construction General Permit requirements. Records of these inspections will be kept for a period of 3 years after completion of final site stabilization.

Routine maintenance measures to be implemented include:

- The temporary sedimentation basin (ESC56) at the plant site will be monitored following each major rainstorm for accumulation of sediment. Sediment will be removed in order to maintain adequate capacity (minimum of 3 feet settling depth).
- Silt fences will be inspected and replaced/repaired as needed. Accumulated sediment will be removed when it reaches a depth of 6 inches.
- Sandbags placed along slopes and the pipeline corridors will be inspected after each rainstorm. Sediment will be removed and deposited in a stable area not subject to erosion.

- If sediment accumulates over 1 foot behind the (sandbag) barrier, the contractor will remove or regrade the sediment.
- If the sand bags are washed away as a result of storm runoff, the damaged sand bag area will be replaced by a silt fence or hay bale barrier. Special attention to these areas will be maintained until erosion is adequately controlled.
- Mulching will be examined for damage or deterioration and reapplied as necessary.
- Protected storage areas for stockpiled soils or other materials will be inspected. Tarps or other coverings will be replaced and secured.
- Soil stabilization and revegetation success will be monitored by a qualified botanist by periodic inspections of the disturbed areas for degree of plant coverage. Additional details are provided in the BRMIMP.

6.2 DURING OPERATION

Final preparation of the plant site will include asphalt or concrete surfacing of the entire plant site area. Permanent erosion and sedimentation control measures will include the runoff collection system (ditches, inlets, culverts, drainage piping) and the surfaced roadway and work areas. These measures will minimize the possibility of any appreciable long-term erosion or sedimentation. Figure 5-1 shows the storm water drainage facilities and paved roadways.

All uncontaminated (non-contact) stormwater will continue draining into the natural drainage channel to the southeast and west of the plant site. Potentially contaminated runoff will be collected within the curbed area at the site and routed to an oil-water separator before release to the natural drainage.

The sedimentation pond, culverts, and storm drains at the RLEPP site will be periodically inspected to ensure the structures are free flowing and clear of debris. As necessary, the structures will be maintained by removing excess sediment and other debris by backhoe, or by hand, as appropriate.

Long-term erosion and sedimentation along the transmission lines and pipelines will be controlled by the revegetation of the disturbed soil areas. Further details of specific revegetation requirements will be provided in the BRMIMP. Revegetation of slopes and disturbed soils will provide long-term stabilization of soils. No additional operational activities will require erosion control or stormwater management.

Because the long-term operation of the power plant and the linear features have been designed to minimize the effects of erosion, sedimentation, and pollutant transport, no operational permit requirements are anticipated to be required by the RWQCB.

7.0 REFERENCES

Construction Activity Best Management Practice Handbook. 1993. *California Storm Water Best Management Practice Handbooks.* March.

Los Angeles County Department of Public Works. 1995. *Blueprint for a Clean Ocean. Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities.*

US Department of Agriculture, Soil Conservation Service. 1993. *Soil Survey of Sacramento County, California.*

US Department of Agriculture, Soil Conservation Service. 1972. *Soil Survey of Yolo County, California.*

Appendix A

Best Management Practices (BMP)